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COLONY OF SEYCHELLES

ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR THE YEAR

1950

Printed by the Head Printer,
At the Government Printing Office
Victoria, Mahé — Seychelles.

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Annual Report of the Department of Agriculture for the year 1950.

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Policy

Government's policy in connection with agriculture follows the enunciation of Colonial aims: land utilization, and development of natural resources to the greatest good of the greatest number of inhabitants of the Seychelles.

The Director of Agriculture Mr. J. N. Milsum, O. B. E., prior to retirement, has submitted proposals for an Agricultural Development Programme which will form a working basis for future development,

In a Colony consisting of some 100 islands scattered over a distance of 600 miles, and sustaining an ever increasing population, the development of proper agricultural practice becomes a rather difficult problem of no mean importance. Agriculture, with a two-crop economy: coconuts and cinnamon, remains the chief and fundamental occupation of the people. The departure from such an economy is almost impossible, and minor crops, such as certain essential oils and vanilla, have no room for expansion. Coffee, cocoa, and cotton though growing very well and yielding fair crops under local conditions, have not been able to make any headway out of the experimental stage, and it is generally agreed now that they have no chance of being taken up to any extent on a plantation or peasant scale. Patchouli, when demand is good remains the stand-by peasant crop, and an increase in world prices of the oil is immediately reflected in an increase in the acreage under this crop.

The encouragement of increased foodcrop cultivation has received much attention for many years now. During World War II, it became imperative to increase the local production of foodstuffs, and thus to decrease as much as possible the complete dependence upon imports. The Food Production Ordinance (Ordinance No. 10 of 1940) was enacted, but unfortunately, in practice, it was found extremely difficult to apply. It was eventually repealed, and replaced by an Ordinance to provide for the increased cultivation of Food Crops (No. 18 of 1945). On the whole, very little has been achieved in food production. However, on Government-owned estates, the policy of intensive food production has been carried out with fair success, and Government has shown the way to local planters in taking a leading part in truck crop cultivation, and in the marketing of locallyproduced food crops. The Department of Agriculture has concentrated on the introduction of high yielding strains of various crops. The issue of seeds and planting material by the Department, and the Grand Anse Estates, plays an important part in the grow more food campaign.

An experiment in mechanical cultivation has shown that the possibilities become very great when small areas of open "plateaux" soils are brought under the plough. There is a saving in labour, which is in short supply, and mechanical operations of ploughing, weeding, ridging have proved to be very economical. An extension of mechanization by the loan of a Government Ferguson Tractor to private landowners is a very recent attempt to increase the area under the plough, and this has already created sufficient interest which if kept up, will no doubt warrant the importation of more tractors in the country.

A major aspect of policy lies in the development of the lower and middle slopes of the granitic islands. The lateritic soils of these slopes have suffered through erosion in the past. In many places the humus layer, together with most of the top soil, has been removed. It has been successfully demonstrated that by terracing, and gradual building up of the organic matter profile, these soils can be brought back to cultivation, with very good results. Bench terracing is rather expensive at about Rs. 500 (£35) per acre on the steepest slopes, but this capital outlay is well worth consideration on a long term basis. It is therefore towards these slopes that the local planting community will have to turn sooner or later, to increase their domestic economy by growing food and fodder crops in rotation with short terms crops like patchouli. It is now firmly established that a proper rotation, grain (Maize) — root crops and vegetables — and a leguminous crop (Cow-pea) is the answer to the proper utilization of these slopes. Where irrigation is possible, even market gardening could be envisaged with fair success,

Much progress has been achieved during recent years in animal husbandry under the Colonial Development and Welfare Scheme, through the importation of Friesian and Sindhi milch cows and pedigree bulls. The appointment of a Veterinary Officer will enable the scheme to be completed with greater confidence, and it will be possible to give more attention in future to this important aspect of development. Increased production of livestock products is considered as a most important plank in general policy, and is looked upon as a stand-by when copra and cinnamon prices, now enjoying a boom, fall back to normal. Increased interest in animal husbandry means increased production of manure, which is essential for composting, and of great use in raising the level of fertility of soils which are so inherently poor in plant nutrients.

The conservation of what remains of the original forest cover, and the reafforestation of denuded areas are of vital importance to the health and economic security of the inhabitants. The wanton destruction of the primary forests in the past, especially on the higher slopes of the steeper islands, has been conducive to soil erosion, and to a reduction in water storage capacity. Many streams which were known to flow all the year round, now show a dry stony bed during 2 and 3 months of the year, the removal of the forest cover having been accompanied by a diminution in water reserve, and these streams have thus lost their regulated source of supply during the drier months. The policy in the past consisted mainly in giving full protection to the most important catchment areas. Fortunately, the Niol, Val Riche, Central Forest, and Midlands are Crown property, and it has been possible therefore to maintain these Crown Lands in such a way as to afford maximum protection to the main watersheds of Mahe and Praslin, the most important islands of the group.

The appointment of a Forest Officer to the Department, late in the year, and the simultaneous launching of the 5 year plan for the reafforestation of some 3,000 acres of land in Mahe, Praslin and Curieuse, will help considerably to protect water supplies, and to provide eventually for adequate supplies of timber and firewood on a sustained yield basis.

Much of the research work on soils, crops and pest control come within the province of the Agricultural Chemist. The damages caused by the coconut borer *Melittomma insulare* Fairm., have been a disquieting feature of the coconut industry during recent years, and lately depredations of this major pest have reached an alarming stage. D. D. T. and

the Agrocide range of insecticides (Benzene hexachloride) have not given any significant results so far. It is hoped that an entomologist may be appointed sometime next year to study the biology of *Melittomma* and to devise methods of control of this pest.

Rats still rank as a major pest of coconuts, and the rat destruction campaign is carried out with a fair amount of success every year. An experiment in biological control by means of the barn owl *(Tito alba)*, on an isolated coral island, heavily infested with rats, seems to be very promising. This experiment is being carefully followed before any large scale importation of owls is effected, as it would be most unwise to upset the natural balance of the larger islands of the group.

SECTION I. AGRICULTURE IN THE COLONY

1. Meteorological Conditions.

Rainfall for the year 1950, recorded at the Port Office, Victoria, was 92.79 inches, slightly above the 50 years average, up to 1950, of 90.61 inches. For the first time during the last nine years, rainfall has been normal and much above the average of 71.54 inches for the drought years, 1942 to 1949. On the West Coast of Mahe, at Anse Boileau, 126.15 inches of rain were recorded. At Souvenir, which is some 2,000 feet above sea level, 144.85 inches of rain were recorded. The nearby island of Praslin received 86.58 inches of rain.

The following table records the rainfall and air temperature taken at the Port Office, Victoria :—

Rainfall and Air Temperature, Victoria.

1950 Month.	Rainfall Inches.	Air Temperature °F. Mean Max.	Mean Min.	Highest Max.	Lowest Min.
January	11.61	84	76	87	72
February	12.75	83	76	86	73
March	6.36	86	77	90	74
April	17.09	87	77	89	74
May	5.09	86	78	89	75
June	1.53	84	76	87	72
July	1.83	82	75	84	71
August	4.54	82	75	84	72
September	5.80	83	76	84	72
October	5.57	83	77	87	73
November	9.70	85	75	88	73
December	10.92	84	76	86	73
Total	92.79	—	—	—	—

The North West monsoon was characterized, as usual, by very heavy rains with a maximum precipitation in April. No drought was experienced though the rainfall in June and July was below average.

On the 20th of December, a cyclone visited the coral island of Farquhar, situated at a distance of 430 miles South-West of Mahe. Preliminary informations received report that serious damage has been caused to the coconut groves of the island, where $\frac{1}{3}$ of the trees are reported to be lost. The centre of the cyclone is reported to have passed at a distance of 30 to 40 miles from the island. The same cyclone later visited the coral island of Agalega which, though a dependency of Mauritius, is only 350 miles due south of Mahe. The centre of the cyclone is reported to have passed very near to the island, where enormous damage to the coconut groves has occured. A barometric pressure drop of $1\frac{1}{4}$ inches was registered at Farquhar.

2. *Coconut Industry.*

The total quantity of copra exported during 1950 amounted to 5,881.961 tons, valued at Rs. 4,525,398. However, as recorded in the annual report for the year 1949, 646.616 tons, valued at Rs. 449,131, which formed part of the 1949 crop and which had been received in the copra sheds, Victoria, at the close of the 1949, were exported at the beginning of 1950. On the other hand, 1,260.018 tons of copra, valued at Rs. 1,223,338, forming part of the 1950 crop, had not been shipped by the end of the year. Thus total production of copra in 1950 amounted to 6,500.353 tons, valued at Rs. 5,229,606. This is nearly a record crop with a record value. The f.o.b. price per ton varied from £70/12 to £74/9. The local selling price ranged from Rs. 620 to Rs. 657 per ton.

Negotiations started late in 1949, with the Ministry of Food, regarding the price to be fixed for the 1950 copra crop. It was unfortunate that it was not possible to come to terms with the Ministry of Food, and producers were released from the existing contract, and sales of copra reverted to the open market. As a result, higher prices were obtained, and steps were taken by Government to modify the Copra Cess Ordinance, and to establish a Copra Price Stabilization Fund and a Board for its administration. Under the Ordinance the Collector of Customs recovers from every exporter of coconuts, coconut oil and copra a charge calculated at the rate of 6% on the f.o.b. price of such goods exported. All sums collected are accounted for by the Treasurer in a special account known as the Copra Price Stabilization Fund.

Inspection of copra was performed regularly by the Produce Inspector in the warehouses on the wharf. Warnings were sent to a few manufacturers who consistently made low grade copra, but on the whole the quality of the copra exported was satisfactory.

3. *Essential Oil Industry.*

The year 1950 was very satisfactory for the essential oil industry, as both patchouli oil and cinnamon leaf oil enjoyed a steady market at remunerative prices.

(a) *Cinnamon Leaf Oil.*

Some 97 tons of cinnamon leaf oil were exported during 1950. This figure compares very favourably with 40 tons in 1948, and 70 tons in 1949. The impetus given to the industry is due to a steady market, and to a gradual and marked increase in price. The local selling price, which was at Rs. 8.25 to Rs. 8.50 per kilo at the beginning of 1950, rose steadily to Rs. 13.50 towards the end of the year. The larger part of the oil was shipped to the United Kingdom ; small quantities were shipped to the United States, Holland and Australia.

As the minimum interval of time for cropping cinnamon leaves is about 3 years, and as the normal production of cinnamon leaf oil in fhe Colony amounts to 50 tons per annum, production should soon fall below normal if the present cropping rate is maintained. Although large areas under cinnamon at Mahé, especially on Crown Lands, have not been cropped for a number of years, extensive cropping cannot be undertaken in these areas as they are mostly catchment areas.

Following a report from London, received in November, 1950, that Seychelles cinnamon leaf oil had been found adulterated with mineral oil (*Kerosene*), Government established the control of cinnamon leaf oil prior to export. Legislation was passed enabling the Agricultural Chemist of the Department to sample every container of cinnamon leaf oil deposited at the Custom Store-houses for export, and to issue export permits for genuine oil only. By the end of the year 5 drums of oil, grossly adulterated with kerosene, had been detected. It is hoped that with the measures adopted no adulterated oil will leave the Colony and that Seychelles cinnamon leaf oil will continue to enjoy its well-established reputation.

(b) *Patchouli Oil.*

The quantity of patchouli oil exported during 1950 is 4,616 kilos. This figure compares favourably to those of 1,664 kilos in 1949 and 1,927 kilos in 1948. The local selling price was steady at Rs. 140 to Rs. 150 per kilo. throughout the year. A remunerative price, a steady market, and abundant and well-distributed rains are responsible for the large crop of 1950. As patchouli is largely a peasant crop every suitable patch of land is now planted under patchouli. Should the same conditions prevail in 1951, a very large crop is expected.

As in previous years, a strict control of the quality of the oil prior to export was maintained in 1950. Every container of patchouli oil deposited at the Custom Store-houses for export was sampled and "Standard Quality" certificates issued. Sub-standard quality oils are not allowed out of the Colony.

The following table gives the export figures and values of cinnamon leaf oil and patchouli oil for the last three years :—

Export of Essential Oils.

	1948		1949		1950	
	Quantity Kgs.	Value Rs.	Quantity Kgs.	Value Rs.	Quantity Kgs.	Value Rs.
Cinnamon Leaf Oil	40,114	271,713	70,404	509,808	97,000	1,172,679
Patchouli Oil	1,927	91,445	1,664	63,777	4,616	769,929

(c) *Cinnamon Bark.*

Some 265 tons of cinnamon bark, mostly unscraped, were exported during 1950. Although this figure compares favourably to 59 tons in 1949 and 117 tons in 1948, the market was limited and the local selling price of about Rs. 150 per ton, did not encourage production. The f.o.b. price per ton of scraped bark was £30 to £40 while that of unscraped bark was from £20 to £22 per ton.

Following a report from the Imperial Institute, received in April, 1950, suggesting experimental distillation of cindamon bark oil, with a view to producing a soluble Seychelles cinnamon bark oil, experiments were started in November, 1950, but could not be completed by the end of the year, They will be terminated in 1951. The scope of these experiments is to produce a marketable Seychelles "Standard Quality" cinnamon bark oil.

The following table gives the export figures and value of cinnamon bark for the last three years :—

Export of Cinnamon Bark.

1948		1949		1950	
Quantity Tons	Value Rs.	Quantity Tons	Value Rs.	Quantity Tons	Value Rs.
117	25,764	59	8,453	265	76,872

4. Vanilla Industry.

The total quantity of vanilla pods exported during 1950 amounted to 779 kilos valued at Rs. 8,987, most of which were still unsold on the English market by the end of the year. The quantities exported in 1949 and 1948 were 5,933 kilos and 3,643 kilos respectively. As mentioned in the annual report for the year 1949, low selling price and lack of market are great handicaps to this industry. Moreover, due to variations in climatic conditions, the vanilla vine does not flower regularly, and it sometimes happens that large crops coincide with low selling price. No large crop has been collected since the bumper crop of 1946.

At one time vanilla used to be a most important cash crop in the Colony, and at the beginning of this century export figures varied between 60—70 tons of beans per annum, valued at over one and a half million Rupees.

The following table records production, and shows clearly the decline of the vanilla industry :—

Year	Production (kilos)	Value (Rs.)
1901	71,889	1,208,792
1916	20,500	—
1928	1,311	—
1932	1,247	—
1949	5,933	96,000
1950	770	8,987

Vanilla was driven from the market by the cheaper substitute vanillin, which is prepared form eugenol. The cultivation of the orchid was therefore gradually abandoned. In Mahé, where most of the Vanilla was grown, low prices, and unfortunately, a root disease caused by a fungus (*Colospora vanillae*) rendered the cultivation an uneconomic proposition.

Vanilla is now relegated to the drier districts of Praslin and La Digue Islands, where it finds favour among a few planters. Root disease is not so prevalent in drier localities, and the madreporic vanilla soils of Praslin—a mixture of coral sand and humus—form an ideal medium for the culture of the orchid. In other parts of the Colony, the soil has deteriorated to such an extent, and disease is so prevalent, that crops are small and irregular, and do not justify any attempt towards profitable vanilla cultivation. In Mahé, the removal of the forest cover, through fire and felling, has further led to adverse conditions for cultivation, as the vine grows normally on a humus bed in a shady environment.

The cultivation of vanilla and the curing of beans are generally well understood by local planters who, unfortunately, are not inclined to use phosphatic guano, and artificial fertilisers, to increase crop production.

5. Salt Fish Industry.

Some 148 tons of Salt fish, valued at Rs. 61,696, were exported during 1950. The comparative figures for 1949 and 1948 are 200 tons, valued at Rs. 78,016, and 55 tons, valued at Rs. 35,421, respectively. Thus although production has decreased in 1950, the price of the produce is more or less at the same level as in 1949.

As recorded in the annual report for 1949, a fishing base will be established on St. Anne, near Victoria, by the Overseas Food Corporation, to produce salt fish for export. A portion of the island, which forms part of the Government—owned Grand Anse Estates, has been leased to the Corporation for that purpose. Preparatory works have already started on the leased portion of the island and the enterprise is expected to start early in 1951.

Towards the end of 1950, legislation was passed covering the quality of salt fish for export. All exported salt fish is now examined, prior to shipment, by the Produce Inspector of the Department.

6. Other Industries.

The following table gives the export figures and values of the produce of minor industries of the Colony for 1950 :—

Export of Guano and Fishery Products.

Product	Quantity	Value Rs.
Guano	7,802 tons	263,472
Calipee	2,834 kilos	40,910
Shark Fins	4,515 ,,	11,665
Tortoise Shell	879½ ,,	8,190
Trepangs	2,472½ ,,	3,435

7. Conditions on Estates.

The labour situation continued to be satisfactory during 1950. An increase in wages of labourers occured from the 1st January, 1950. This came into effect following the recommendation of a Wages Committee, appointed by His Excellency the Governor, which started work during the latter part of 1949. The new minimum wages requested by law are :—

Men Rs. 18/50 per month for a working week of 33½ hours ;

Rs. 22/50 per month for a working week of 40 hours ; Women Rs. 9/50 per month for a working week of 33½ hours.

The rise in prices of agricultural produce during 1950, induced land-owners and planters to keep their plantations, especially coconut groves, clean and manured, and to collect as much cinnamon leaves as possible. Moreover every suitable plot of land was planted to patchouli. It is unfortunate that an extention of patchouli means a reduction in food crop cultivation.

Increased activity was thus a common feature on the agricultural estates throughout the islands.

8. Pests and Diseases.

(a) *Rats.*

The position is more or less the same for this major pest of coconut groves, A premium of 5 cents per rat tail was paid, as in the past, by Government, to encourage destruction of rats. Various poisons were also sold at the Department for a large scale poison campaign.

Beneficial activity is reported on Platte Island from the 3 Cape Barn Owls (*Tito alba*) liberated on that island in 1949. The birds are reported to be taking a heavy toll on the rat population, and seem to be very promising as a means of control. Unfortunately they have not been observed to breed up to now. As it is not easy to differentiate sex in owls by external appearance, it may well be that the 3 birds are of the same sex.

(b). *Melittomma Insulare*, Fairm.

The situation is the same concerning this very serious pest of the coconut palm. Representations have been made to the Secretary of State for the Colonies to obtain the services of an entomologist to study the control of this pest.

(c) *Oryctes Monoteros* 01,

Another small batch of *Scolia ruficornis*, a parasite of the Oryctes larvae, was received from Zanzibar in 1950. The wasps were liberated in a heavily infested area in Mahe. On account of difficulties in obtaining large batches of live wasps, biological control of that minor pest of the coconut groves is bound to be rather slow.

9. Food Production.

The food pattern has not altered very much from that described in last year's report. The staples : maize, rice, and lentils must still be imported. Small consignment of vegetables, chiefly cabbage and beet, are also imported from time to time from East Africa. The main requirements of the population in vegetables and foodcrops are produced on the Government-owned Grand Anse Estates and on a few private estates. The most important rootcrops grown are sweet potato, cassava, yams and Jerusalem artichoke. The Lisbon yam is well suited to the calcareous sandy coastal flats and when properly manured yam plantations do yield much more than any other rootcrop. The most important vegetables produced are cabbage, carrot, beetroot, chinese cabbage, lettuce, lady's fingers, egg plant, french beans and long beans.

A large proportion of the milk requirement of the township of Victoria is produced at the Government Dairy of Union Vale. As already mentioned earlier in this report the extension of patchouli, which is now fetching a high price on the market, tends to jeopardize the local production of foodstuffs. This is rather disappointing, as the area under the most important protective foodcrops is already unusually small.

SECTION II. WORK OF THE DEPARTMENT.

1. Veterinary Division.

Policy and Husbandry.

No indigenous breeds of cattle or of any other livestock existed in Seychelles. The present "CREOLE" stock are mostly the survivors of previous cattle importation from France, India and other countries. This policy was not further continued, and as unsuitable breeds had been introduced in the past, the stock eventually degenerated, losing stature, stamina and productive capacity. In view of the ever increasing demand for milk and beef, small scale importations were made from Mauritius and Kenya, and later large scale importations of Friesian and Sindhi cattle, were effected in the years 1945, 1948, 1949, under a grant from the Colonial Development and Welfare Funds.

Experience in the past suggested that pure Friesians when bred under local environment degenerated quickly with definite loss of type and milk production. Pure Sindhi stock imported from India, however, maintained quality and type to a satisfactory standard, under local conditions. A breeding policy was worked out on the basis of experience acquired in Jamaica, Trinidad and Ceylon, where similar conditions obtain as in Seychelles. The policy consists in grading up local stock and in crossing the Sindhi and Friesian breeds. In practice, the crosses have so far done very well, standing to the wet tropical environment, and thriving on a low plane of nutrition.

Marked tolerance to ticks and diseases have been noticed. A few of these crosses are expected to calve shortly when a comparative study of their efficiency against the Sindhi and the Friesian would be undertaken.

The breeding policy at the various livestock centres is as follows :—

(1) To build up a dairy strain by crossing of the Sindhi and the Friesian breeds ;

(2) To build up a pure Sindhi herd, for supplying future requirements of Sindhi cattle ;

(3) To station pedigree Sindhi and Friesian bulls at important livestock centres for the grading up of local stock ;

(4) To distribute cross-bred heifers and bulls to stock owners ;

(5) To castrate scrub bulls to accelerate the grading up programme.

It is proposed to increase milk production to a level of 400,000 pints by 1955, by importing 40 graded Friesian heifers and by rearing 20 selected heifers every year.

As usual, the crosses and the local cattle were stationed on various Government estates for milk, breeding, and manurial purposes.

Pigs.

12 Large White Pigs were imported from East Africa in the year 1948, and are now stationed on the St. Anne estate, where breeding of Large White Pigs is carried out, for supplying pure stock to prospective breeders. The crossing of local sows with the Large White Boars is carried out at Anse Boileau. It is proposed to construct a pig sty at St. Anne, for fattening up weaned piglets prior to their sale on the local market.

Poultry.

Poultry breeding operations were carried out at two centres from which pure stock and eggs for hatching were sold to small breeders. A considerable supply of eggs was also made to the Hospital and to other institutions.

No poultry importations have been effected since 1948. As such the present flock needs replacements, by the introduction of young stock, for breeding and laying purposes. The future plan of work will consist in starting a model poultry farm, where better methods of housing and management will be practised. A large number of eggs will have to be hatched from year to year, to replace the old stock and to distribute a fair number of pure-bred birds to breeders. This farm will be the seed farm, and a centre for imparting vocational training in poultry farming. An egg-incubator of 60 egg-capacity is also to be obtained, for hatching a large number of pure eggs. It is also proposed to start small poultry propaganda units, on the main and the outlying islands, which will serve as a potential source of pure eggs and breeding stock. Efforts are being made in this direction to contact interested poultry breeders, for the setting of the various poultry units.

Sheep and Goats.

No sheep breeding centre was maintained, except a few Jumnapari Goats stationed at the Souvenir Estate. These goats are the survivors of the previous importations from India. A large number of enquiries were received in connection with the prospective breeding of sheep and goats in the Colony. It is proposed to start a goat and sheep breeding centre early next year and to distribute males for breeding purposes.

Beef.

The slaughtering of animals was effected under a permit, and accordingly 502 head (141 cows and 361 bulls) were slaughtered during the year on the main and the outlying islands. Of the total, some 20 to 25% of the cattle were slaughtered at the Government Abbatoir, Victoria.

The Agricultural census recorded a drop in the cattle population, from 3277 head in 1944 to about 2000 head in 1950. In absence of any cattle epidemics the depletion in the cattle population can only be attributed to indiscriminate slaughtering of animals of all ages during the past several years. In order to avert this drain, drastic measures become necessary to control the slaughtering of animals of breeding age. This would call for the examination of every female animal, bought for slaughter, and possible evasion of the misuse of the permits issued for the slaughter of old cows and bulls. To safeguard against all possible eventualities, it would be necessary to enact a law pertaining to the slaughter of animals for beef, and to introduce a nominal fee for the permits issued for slaughter. At the moment, as far as possible all cows bought for slaughter are examined, prior to the issue of a permit.

A more definite and a detailed system of maintaining various records, for production and progeny was introduced at all livestock breeding centres.

Bee-Keeping.

No apiary was maintained by the Department. A large number of apiaries were maintained on private estates. It was observed that honey yields could be considerably improved if a little more instruction on modern bee-keeping were available. Far too large a percentage of hives were of poor design and construction, and not conducive to the maximum production of honey by any means. The average quality of honey is good, and no doubt, if bee-keeping were properly organised, a market could be obtained to consume surplus requirements and provide a substantial revenue to bee-keepers.

Veterinary Services.

Subsequent to his appointmeut, the Veterinary Officer arrived in the Colony on 29.10.50, and took charge of the post. The main duties entrusted were the Livestock and Veterinary extension programme, and the final revising of the Animal (Diseases and Importation) Act and Regulations. In addition, a veterinary clinic was established at the Agricultural Headquarters under unusual technical facilities. During the short term of two months, the Government livestock centres and other privately-owned herds were visited, to obtain first hand information on animal husbandry problems.

Extension programme in connection with the Animal Husbandry advisory work, investigation into diseases of the livestock, examination of animals of breeding age prior to slaughter, and the training of local personnel in Animal Husbandry and Veterinary Science were undertaken.

Government Dairy, Union Vale.

The general policy of crossing the Sindhi with Friesians and the breeding of pure Sindhi cattle was continued. Milk records and other details were maintained up to date. 98 head of Friesians, Sindhis, and the cross progeny were maintained. The cattle grazed throughout the year, except during heavy rains.

Fortnightly dippings were carried out and the herd remained free from ticks. No breeding irregularities or incidence of any disease were recorded. Of the 64 calves born during the year, 33 were males, and 31 were females. 10 deaths were recorded amongst the male calves. 1 male calf and 3 female calves were sold, while 13 male calves and a female calf were transferred to the St. Anne estate for rearing.

In addition, 3 local cows and 24 calves born during the previous years, were sold to the public. A Friesian cow imported from South Africa, died of suppurative hepatitis.

As experienced elsewhere, the rearing of young stock was expensive and demanded much time and labour. Rearing of bull calves had to be undertaken to meet with an ever increasing demand for beef. All the above factors affected the sale of milk to the public and the milk supply had to be restricted. The amount of milk produced during the year was distributed as under :—

	1950.		1949	
Supplied to Hospital	21,527	pints	22,025	pints
Supplied to Customers	166,392½	,,	117,962	,,
Fed to calves	17,975½	,,	32,298	,,
Total	205,895	pints	172,285	pints

The demand for milk is ever increasing and to meet the same, the only possibly way is to effect importations of milch cattle as early as possible.

Cattle on Government Estates.

Details of cattle maintained on various Government Estates till the end of the year, were as shown hereunder :—

St. Anne Island	50 head
Anse Boileau Estate	11 ,,
Foret Noire Estate	7 ,,
Grand Anse Estate	41 ,,
Curieuse Island	11 ,,
Souvenir	9 ,,

The St. Anne estate was used as a dry farm, and for rearing young stock transferred from the Government Dairy, at Union Vale. A pure Sindhi herd of 22 head was stationed on the Grand Anse Estate. The first lot of Seychelles born Sindhi heifers and bulls have now attained maturity and are in excellent condition.

A pedigree Friesian bull was stationed on the Anse Boileau estate, along with a few local cows and bullocks. A total of 2878 pints of milk was produced, of which 685 pints were sold to the children's creche.

721½ pints were sold to the public and 1471½ pints were fed to the young stock. The cross and the local stock were maintained on the various estates for milk and manurial purposes. Fortnightly dippings were carried out and the cattle remained free from ticks. Fodder cultivation was carried out on the Government Estates.

Services by the Pedigree Bulls.

The policy of grading up the local stock by breeding with pure Sindhi and Friesian bulls was continued. 6 bull units functioned at important livestock centres and 110 cows were served during the year. Arrangements are also completed to station Pedigree bulls at Mamelles and La Digue Island.

Poultry.

Poultry units functioned at the Botanical Gardens and Anse Boileau estate. The poultry unit on the Grand Anse estate, was closed down in June and the stock transferred to the units functioning at present. The breeding of pure Rhode Island Red and the crossing of local birds with pure Rhode Island Red cockerels was continued. At present the farm flocks consist of the following :—

Breed	Laying Hens.	Cockerels.	Pullets	Young Stock.	Total.
Rhode Island Red	38	9	11	13	71
White Leghorn	6	1	—	—	7
Crosses	49	1	—	10	60
Local	12	—	—	—	12
Total	105	11	11	23	150

The pure stock are the survivors of the importations effected in 1948. Most of them are old and deserve to be culled out. The egg production was 5,809, of which 500 were supplied for hatching and the balance supplied to hospital and other institutions. The hatching was tried with broody hens and the percentage of hatchability was poor.

Pigs.

Pig breeding units functioned on the St. Anne and Anse Boileau estates. A batch of 12 Large White Pigs were imported in 1948, and the breeding of pure Large Whites and crosses have since then been successfully carried out. The herd at the farms now consists of the following :—

Breed.	Boars.	Sows.	Gilts.	Piglets above 2 mths.	Piglets under 2 mths.	Total.
Large White	5	12	2	40	32	91
Black	1	3	—	2	—	6
Crosses	3	9	10	15	32	69
Total	9	24	12	57	64	166

Twenty-five sows farrowed to produce 265 piglets of which 238 were weaned. 136 weaned piglets were sold to the public, either for breeding and slaughter. Piglets were kept at Government Dairy, Union Vale, to facilitate the selection and purchase by the public in Mahé.

Goats.

2 male and female Jumnapari goats were stationed on the Souvenir estate ; 2 kids were born during the year, which subsequently died. A Jumnapari male goat was stationed at Mont Fleuri, for breeding purposes.

Animal Health.

44 clinical examinations and treatments of various classes of animals were carried out. 12 castrations by the Burdizzo method and 30 castrations in boars by the open method were performed.

No outbreaks of contagious diseases were recorded amongst cattle. pigs or dogs. A widespread infection of Fowl Pox was detected at several poultry units on the island. Strict measures of isolation and disinfection were advised. Fowl Pox vaccine was obtained from the Kabete Laboratories, Kenya, and 83 young and adult birds were subjected to prophylactic vaccinations. The disease appears to be of a seasonal occurrence, as such could be efficiently controlled provided the co-operation from poultry breeders is forthcoming.

The main requirement in the production of good quality milk and successful breeding operations is that the animals should be fed on adequate and suitably balanced ration, which should consist of roughages, such as hay, green fodder and concentrates. The concentrates seem to be non-existent in the Colony, as a result of which the bulk of dairy cattle are in the category of acute malnutrition. As such the cattle have deteriorated in stature, stamina and productive capacity. The problem requires greater attention, and before any conclusions can be drawn, attempts will have to be concentrated on cultivation or importation of cattle feeds. Mineral supplement in the food rations are also equally necessary.

Tick infestations are predominant and control measures are inevitable.

Helminthic infestations in cattle, poultry and dogs were studied. In cattle the species are *Trichuris* and *Ascaris*, while in poultry *Oxyspirura* (eye worms), *Ascaris*, *Heterakis*, *Raillietina* and *Acanthocephala* were detected. Necessary treatment against each of the species was carried out. *Diplidium* infestation in dogs was also detected. Itching condition in pigs were treated with creosote and coconut oil with favourable results. Diptheria, scaly legs, and *Ecidnophaga gallinacea* infestation in poultry were detected and treated accordingly.

Investigation and Research.

40 smears, 14 faecal samples, 6 milk specimens and 3 other specimens were examined at the Laboratory for diagnostic purposes. In addition, 3 biological tests, and 11 postmortem examinations were performed.

A detailed study into the following diseases was carried out :—

(a) Disease of obscure origin in poultry ;
(b) Eye worms in poultry.

(a) *Disease of obscure origin in poultry.*

Several deaths amongst poultry were reported at four breeding units with mortality ranging from 30 to 70%. A detailed investigation was carried out to study the cause, symptoms, and postmortem lesions. The symptoms were darkened comb, wry neck, thick mucuous discharge, off-feed, extreme prostration and death within 2 to 5 days. On postmortem no definite lesions were observed except extensive haemorrhagic enteritis. The smear examination of internal organs and biological tests failed to reveal any definite results. The possibilities of malicious poisoning with chemical poisons were excluded by subjecting the crop and intestinal contents to analytical tests. It was however believed that the deaths may have been due to the birds eating decomposing animal tissues, as on several postmortems the crop was found to contain a large number of maggots. A few recoveries were obtained by dosing the birds with Fpsom salts or castor oil. Further work on the above disease is to be continued at the next available outbreak.

(b) *Eye Worms in Poultry.*

Eye worms *(Oxyspirura mansonii)* were detected at several poultry units, producing lesions in the eyes of the fowls varying from profuse lachrymation, severe opthalmia, blindness and complete destruction of the eyeball. In absence of the specific drug creolin, various collyria were tried with varying results. In addition, general hygiene, and extermination of cockroaches in the poultry houses were advised.

Miscellaneous

No dogs or any livestock were imported during the year and quarantine stations were unoccupied. It is proposed to carry out some alterations in the existing structures at the quarantine station during the next year.

The animal (diseases and importations) Ordinance with Regulations was reviewed and submitted for final acceptance.

DR. D. K. DESAI,
Veterinary Officer.

2. Forestry Division

The year 1950 yielded little progress in the work of reafforestation due to the arrival of the Forester, whom it was anticipated would be available by March, 1950, to commence the five years reafforestation of Crown Lands Scheme, being delayed until mid-November. However, some planting was undertaken in the meantime at Val Riche, also several buildings were erected to assist the housing and welfare of forest worker

An early start was made possible for the Forester due to the foresight of the Director of Agriculture who wisely provided for a supply of seedlings to be held on stock against the forester's eventual arrival. Thus by the close of the year, a further 10 acres of land had been planted up, and the five year scheme and Forestry Division inaugurated.

Work began at Sans Souci and Niol but owing to labour shortage, the bulk of the work during November and December has been in the Sans Soucis area. Inspection of the existing plantings at Val Riche and Niol showed some extremely good growth, but it is regretted that it is confined mostly to individual specimens or small groups, than to the plantings as a whole. However, the percentage of establishment is encouraging, and with closely attended weeding and mulching during the coming year the bulk of these trees should be out of danger.

One thing came to light in a very definite manner and that is the absolute necessity of mulching on the bare slopes. The difference between mulched and unmulched plants is phenomenal. The one great fault is that the majority of previous plantings are far too widely spaced which means the objective i. e. soil cover, and good timber form have been partly frustrated by this method.

Another interplanting of a fast growing tree will be attempted in the coming year to bring about a great number of trees per acre in these understocked areas.

During the past year, 22 acres (12 Val Riche and 10 Sans Souci) of land were planted up, while the existing Val Riche and Niol areas received several weedings and mulching. The total number of trees planted amount to 8,786, and the following produce has been prepared :—

No. of Seedlings.		*Timber Production.*		
Albizzia	3366	Albizzia Planks	13,446	ft
Agatis	3250	Cedar Posts	1,492	,,
Jack	705	Cedar Rafters	906	,,
Santol	330	Eucalyptus Planks	1,977	,,
Bois Noir	320	Sangdragon Planks	1,195	,,
Bois Rouge	210	Breadfruit Planks	1.298	,,
Takamaka	105			
Bois de Table	100			

In addition to the above timber 463½ cords of firewood were prepared for the Central Distillery and 1,759 drums of charcoal were prepared for public sale. Also the following buildings were erected or repaired at Val Riche :—

1 Nursery	Erected.
1 Tool Store	
1 Laundry	
1 Charcoal Store shed	
3 Houses for Labourers	
4 Houses	Repaired.

Policy.

The following is a brief outline of the policy and immediate working plan for the five year Reafforestation Development Scheme.

Although these islands appear for the greater part to be well timbered to the casual eye, the shallowest investigation will show that our timber resources are in fact dangerously low, and the existing timber is on an average not of good sylvicultural form. The remains of the natural forests are on such elevated and difficult terrain, that to exploit them would cost more than the timber is worth, this is apart from the complete inadvisability of interfering with them at all.

In the past, afforestation has been carried out rather spasmodically, owing to unreliable and limited financial aid, thus the implementation of a working plan has been extremely difficult. This meant that the forester often lacked the financial resources required to follow up initial plantings with the required further treatments, and losses due to this have been considerable, resulting in much time, labour, and money wastage. This must not be allowed to happen again.

Forestry is a long term investment and any set back in its plans resulting from severe retrenchment or other cause, is not readily remediable. Forestry is not like agriculture where mistakes or damage to crops may be righted within a year or two. The long term effects of any restrictive financial policy will be manifest only after many years, in the form of a shortage of essential forest produce and less favourable financial return on the money invested.

Owing to its geographical position this Colony will be unable to rely upon future imports of timber in the event of another emergency, and must, therefore, build up its own resources in timber and forest produce generally.

The shortage of timber is not confined to these islands, but is rapidly becoming world wide, and the further likelihood of cheap and adequate imports of foreign timber becoming available is extremely doubtful. We must face the fact that we are rapidly approaching the stage where emphasis must be upon local production, for high prices and inadequate shipping facilities will naturally result in insufficient quantities for consumers, at prohibitive prices. This and the disconcerting instability of the world at present makes it even more essential that this Colony should aim at complete home production of sufficient timber and fuel to meet its requirement, and in course of time attempt to build a safe reserve against all conceivable exigencies. Efforts to this end should be unrestrained and given maximum assistance.

There are at present in this Colony many areas of privately owned deforested and scrub lands not under the control of the Forestry Department, which are deteriorating for want of proper conservation. It is hoped that with mutual aid, encouragement and by example, the private owners of such lands may be persuaded to reafforest them.

The forests of this Colony are a communal asset held in trust for the people, and the future forest policy must provide, therefore, for the closest integration of forestry plans with those required for the long-term economic development of the Colony. It must ensure that purely financial considerations are not permitted to obscure the sound tenets of forest conservation. Above all, it must ensure the retention in perpetuity of adequately afforested lands to preserve the climatic conditions and water resources of this Colony, and in addition, the provision of the average annual requirements of the community in essential forest produce.

Working Plans.

The extremely variable nature of the terrain and absence of complete records of rates of growth, soil requirements, economic felling cycles, etc., of each species, means that for the first few years, the working plan will necessarily have to be very elastic. The present threat of a third world war cannot be overlooked, and this will materially affect the plan, in that a far greater number of food bearing trees (Breadfruit and Jackfruit) will be planted, than would normally be the case, in order to establish a reserve to be available in an emergency which might endanger present food supplies. However, these trees have the dual advantage of being useful timber species and so can also yield timber and fuel.

By far the greater area of "difficult" sites (steep rocky slopes at higher elevations, eroded sites, and areas of known low fertility etc.,) will be planted with Agatis, Albizzia, Cajou, and other fast growing or accommodating species. The object of this is to bring about as quickly as possible, maximum soil cover over these areas, for trees save a greater amount of rainfall for streamflow and underground storage, than does any other vegetation cover. The longer areas on steep slopes are left without trees, the greater the soil destruction. In addition to a rapid soil cover, these trees will also provide a revenue in the shortest space of time in the form of thinnings for cordwood or poles. When these initial plantings have reached the required stage, they will where possible or desirable, be underplanted with a more valuable species.

Where cinnamon is present in quantity and the terrain allows, a system is to be attempted of creating a forest with a cinnamon understorey. On some of the older plantations where plantings have been spaced too widely, a catch crop of Casuarina planted between them will be tried. The aim being to produce marketable poles for estate work, and better stem form to the existing crop. River valleys, lower slopes and plateaux of known fertility on the Crown Lands will be planted with Breadfruit or better class timber which will include as many as possible (and economical) of our endemic timbers. New nurseries will be built to supply fresh areas as they are opened up, but where possible, nursery work is being bypassed with direct sowing which saves costs and labour. Results of this method to-date have been encouraging.

Various experiments with planting technique and distances, alternative methods of preparing ground, weed control, etc.. are being carried out, while records of seed germination, viability, annual, growth, (height and increment) soil requirements etc., are being compiled. Until conclusive observations can be made from the results of these experiments and records, a really clear cut working plan cannot be compiled. However, sufficient is known and can be observed from existing mature and young specimens of various species to enable reafforestation to proceed on a sound sylvicultural basis, and in addition to the Central Forest areas, Sans Souci and Niol, work will be commenced at Grand Anse, and Praslin.

A target of 800 acres of land planted is the aim for 1951:

E.F.BREWER,
Forester.

3. Agricultural Chemistry Division and Central Distillery.

(a) *Laboratory.*

Except for some research work on soils and on essential oils, work in the chemical laboratory of the Department consists of examination of produce (copra, cinnamon bark and essential oils) prior to export and the examination of various samples submitted by the Excise and Police Departments, as well as any samples submitted by the public.

Routine Work.

A total of 545 samples were examined during 1950, involving some 1,650 determinations. The respective figures for 1949 and 1948 were 342 and 262 samples respectively. Out of the 197 samples of fermented liquors, submitted by the Excise Department 70 were found to be "La Puree", which amounts to 35.9%. The figures for 1949 and 1948 were 46.2% and 51.2% respectively. The number of copra samples examined for moisture content was 25. Samples of milk from the Government Dairy of Union Vale were examined regularly ; 15 samples were examined. Samples of cattle dip solution from various Government Estates were also examined regularly throughout the year : 15 samples were examined in all. A sample of dry patchouli leaf, collected from a lot of leaf deposited at the Custom sheds for export, was dealt with at the experimental distillery attached to the laboratory and was passed as fit for export. One drum of patchouli oil of sub-standard quality, suspected to be adulterated with a fixed oil, was rejected as unfit for export. Following the adulteration of cinnamon leaf oil, all containers of cinnamon leaf oil leaving the Colony were sampled and the samples examined, as from November, 1950. By the end of the year 5 drums of cinnamon leaf oil, grossly adulterated with mineral oil (kerosene), had been rejected as unfit for export. The usual certificates or permits for copra, patchouli oil, cinnamon leaf oil and cinnamon bark were issued during the year. As during previous years, the Agricultural Chemist also supervised the work of the Government Central Distillery for essential oils and supervised the Produce Inspector at the Custom Storehouses.

Research Work.

As announced in the report for the year 1949, a study of the highly-calcareous "plateau" soils of the granitic islands of the Seychelles was completed early in 1950. This report was submitted to the Secretary of State for the Colonies who has suggested its publication. Due to acute shortage of staff in the Department during 1950, the Agricultural Chemist was often detailed to urgent field and other work and was unfortunately unable to proceed with the study of the other soil classes of the Colony.

The Seychelles "plateau" soils are extreme instances of Rendzina soils. They are of coral and shell origin, being mainly coral and shell debris collected along the bays and creeks of the granitic islands. Although restricted in areas, being long flat narrow coastal deposits, they are very important from the agricultural view-point, as they are estimated to produce nearly one-sixth of the total copra of the Colony. They consist of highly-calcareous single-grained sands and loamy-sands, grey to black

in colour, 1 to 12 inches deep, overlying white calcareous single-grained coarse sands. 3 to 5 feet in depth, extending down to water. Frequently a hard impervious calcareous pan exists just above water level. The pH of both horizons indicates slight alkalinity. The calcium carbonate content of both horizons is very high. The organic matter content of the A-horizon is fair on the average, but varies greatly. The air-dry moisture content of both horizons is low. The total exchangeable cations content of the A-horizon is low and the carbon-nitrogen ratio is satisfactory. The contents in acid-soluble potassium and phosphorus of the A-horizon are low while its content in acid-soluble magnesium is high. The A-horizon contents of acid-soluble iron and manganese are extremely low, and there is evidence of deficiency of these elements in the vegetation, chickens and cattle. The organic matter content of the A-horizon seems to have very important bearing on air-dry moisture content and total exchangeable cations content of that horizon. There are general linear relationships between the content in organic matter of the A-horizon and its contents of air-dry moisture and acid soluble phosphorus; there is also a marked linear relationship between the organic matter content of the A-horizon and its total exchangeable cations content.

The "Plateau" soils are mostly planted with coconut; small patches of vanilla and *Casuarina equisetifolia* also occur on certain parts of the islands. On the average the coconut palm does well on the "plateau" soils. This may be attributed to the very open texture of these soils and to the fact that the coconut palms may be able to obtain part of their nutrients from the hill-side drainage water.

A report from the Imperial Institute, received in April, 1950, suggested experimental distillation in the Seychelles of Cinnamon bark oil with a view to producing a soluble Seychelles Cinnamon bark oil of marketable value. The problem to be solved consisted in determining what proportion of the first distillates. rich in insoluble terpenes, should be discarded to produce a soluble oil. Cinnamon bark of known age was collected and dried for these experiments, but the latter could not be completed by the end of the year owing to the Government Central Distillery being engaged in other urgent work. The experiments will be completed early in 1951.

Following the report of adulteration of Seychelles Cinnamon Leaf Oil with mineral oil (Kerosene), research work on the best ways and means of detecting small quantities of mineral oil in cinnamon leaf oil was undertaken towards the end of 1950. A method has been evolved enabling the detection of as little as 0.5% kerosene in cinnamon leaf oil.

Under the supervision of the Agricultnral Chemist, a small consignment of the Scoliid wasp *Scolia ruficornis*, a parasite of the coconut beetle *Oryctes monoceros*, received from Zanzibar, in July, 1950, was liberated in a heavily infested area in Mahe. A survey will be carried out in 1951 of the area where the wasps were liberated to find out whether they have been able to breed under the local conditions.

(b) *Central Distillery.*

The Central Distillery, under the control of the Department of Agriculture, is mainly engaged on distillation of patchouli oil, cinnamon bark oil for planters and dealers in essential oils. Cinnamon leaf oil and Eucalyptus oils, from material collected on Crown Lands and Government Estates, are sometimes distilled at the Central Distillery, when the latter is not engaged on other essential oils for the public.

During the early part of 1950, from January to April, the Distillery was engaged on the distillation of cinnamon leaf oil from cinnamon leaves collected on Crown Lands in Mahe. After April large stocks of patchouli leaf were brought to the distillery by planters and dealers and the distillery was devoted to patchouli. In November and December some experimental distillations of cinnamon bark oil were effected. With the increase in price of patchouli oil and extensive cultivation of patchouli, the Central Distillery has had a rather busy year. The following table records the quantities of various materials dealt with at the Central Distillery during the past three years and the various average yields obtained :—

	1948		1949		1950	
Material.	Wt. of leaves in tons.	Av. yield in litres ton of leaves.	Wt. in leaves in ton.	Av. yield in litres ton of leaves.	Wt. of leaves in ton.	Av. yield in litres per ton of leaves
Cinnamon leaves	9.860	7.1	6.597	8.2	44.578	6.8
Patchouli leaves	23.191	49.2	9.883	48.5	38.522	49.3
Eucalyptus leaves	Nil	—	5.187	15.2	1.666	14.1
Cinnamon bark	4.321	3.0	Nil	—	1.500	4.8

As mentioned in the annual report for 1949, a new 300-kilo still was erected at the Central Distillery. The 125-kilo still, which was on use before the acquisition of the new 300-kilo still, is no longer used and will be disposed of.

G. LIONNET,
Agricultural Chemist.

4. Grand Anse Estates and unleased Crown Lands.

The Department continued in the management of the Government-owned group of estates known collectively as the Grand Anse Estates and in the general supervision and development of the Unleased Crown Lands.

(a) *Grand Anse Estates.*

Details concerning the composition of these Estates are as follows :—

Name of Estate	Area in acres.	Date purchased.	Land Utilization.
Grand Anse	1,180	1939	Coconuts, Cinnamon, Foodcrops, Sugarcane. Soil Conservation. Cattle (Sindhi breed).
Souvenir	200	,,	Cinnamon, Vegetables, Fruit.
Anse Boileau	1,023	,,	Coconuts, Cinnamon, Foodcrops, Sugarcane. Cattle (cross breeds),
Foret Noire	928	,,	Coconuts, Cinnamon, Foodcrops, Sugarcane,
Union Vale	240	1944	Experimental Station in Soil Conservation, pasturage and Dairying.
St. Anne Island	500	1948	Coconuts.— Cattle (Friesian — Sindhi cross breds) under ranching conditions. Large White Pigs.

Grand Anse, Anse Boileau and Foret Noire are distributed on the West Coast of Mahe and comprise relatively small areas of sandy "plateau" land at sea level, and considerably larger areas of steeply sloping and often poor rocky slopes. These slopes may rise to altitudes exceeding 1,300 feet and contain many areas with granite outcrops which are uncultivable, and many eroded hillsides. This description applies generally to the topographical and physical features of the middle and higher slopes of most of the granitic islands of the Seychelles Group.

One of the major aspects of policy of Grand Anse Estate is to provide improved living conditions for estate personnel, in or order to secure a settled labour force with all possible amenities for themselves and their families, This policy was carried out to the full during the year under review and progress made in housing and amenities is recorded under another section of this report. The Grand Anse Estates, at the

same time, afford an example in what may be described as a semi Land Settlement Scheme. Though the labourers work for the estates, they are able to cultivate ½ acre of land to foodcrop, outside estate working hours, these crops being the property of the labourers.

With the arrival of the Forest Offieer at the close of the year it was possible to make a brief survey of the scheme for reafforestation of 1000 acres of mountain side and ridge within the estates which are considered essential for forest reserves. The planting programme is due to start early in 1951.

It has not yet been possible to secure the services of a Development Officer for the Estates, but it is hoped that an appointment may be made early next year. The services of this officer will enable estate husbandry, coconut experimentation, soil conservation and irrigation to receive greater attention. The terracing and cropping programme envisaged on some 300 — 400 acres of poor eroded hillside soils under irrigation will help the development programme as it is proposed to grow maize and vegetables in the rotation. It is anticipated that this terracing scheme will at the same time act as an experimental demonstration with a possible extension by private landowners on their estates and thus beneficial effect towards increased food production will be secured.

Coconuts and Copra.

The total number of coconuts collected during the year was 1,507,931. A total of 208.317 tons of copra was produced of which 168.8 tons were exported and 40.1 tons were converted into oil and poonac (coconut cake). Continued attention was given to supplying vacancies and to underplanting in coconut groves. Some 2,000 seedlings were raised from selected palms, and after selection in the nursery were planted on the various estates.

Foodcrops and Vegetables.

The intensive planting of foodcrops and vegetables was continued in continuance of the policy set out during World War II for maximum food production. A little over 30% of the labour force was employed on the cultivation of foodcrops. In the past up to 50% of the labour force was generally devoted to this particular occupation, but fortunately with the use of the 20 H. P. standard Ferguson Tractor purchased in 1949, it was possible to reduce labour considerably under this item. The irrigation scheme at Grand'Anse and Anse Boileau was completed save for the installation of the wizard simplex water fans and oscillators which had not yet been received at the end of the year. The production of foodcrops was maintained in the interest of the public generally, although pending the full benefit of mechanization and irrigation, receipts only just cover expenses with no allowances for overheads.

The following table records production figures of foodcrops and vegetables :—

Description.		Production.
Casava	...	7.38 tons
Sweet Potatoes	...	19.48 ,,
Yams	...	23.54 ,,
Cabbages	...	9.8 ,,
Mixed Vegetables	...	21.6 ,,
Fruits (Bananas, Oranges, Lemon etc).	...	72,000 units.
Maize	...	4 tons.

Cinnamon.

The cinnamon leaf crop collected and distilled at Grand'Anse Distillery was as follows :—

Estate.	Weight of leaf, Tons.	
Grand'Anse.	402	
Anse Boileau	119	
Foret Noire	47	= 568 tons.

The distillery had a busy time and worked almost to full capacity. Towards the end of the year a third still of 500-kilos leaf capacity was received and will be installed early next year. It is anticipated that the material produced will increase by 33%,

The labour for picking cinnamon was scarce and higher prices had to be offered for picking leaf in distant areas. Fortunately an advance in price of the oil during the year made it possible to maintain the cropping programme at a steady level. 3,533 kilos of oil were obtained from the total of 568 tons of leaves distilled giving an average of 6.2 litres per ton.

Sugarcane and Bacca. (fermented Sugarcane juice).

The area under sugarcane was increased considerably to meet the demand of the various Bacca Clubs and community centres. 412 tons of cane were supplied to the Bacca Clubs and 172 tons milled on the estates for the production of bacca for consumption at the centres at Grand'Anse and Anse Boileau.

Livestock and Livestock Products.

Full details of the activities on the estates and at the Union Vale Dairy are given in the Report of the Veterinary Officer.

Fodder Cultivation.

Owing to limited pasture grazing, Paspalum dilatatum, Guinea grass, Elephant grass and maize, were planted on about 40 acres of bench terraced land. The fertility of the bench terraces was maintained at a high level by periodical applications of cattle manure, The silo pit was cleared during the year, and some 75 tons of green maize were again filled in. This quantity should supply the green fodder requirements during dry months. In absence of any available concentrate in the Colony, the milch cattle were fed on maize bran and coconuts, supplemented with mineral mixture.

Buildings.

The copra dryer (calorifere) at Grand'Anse was completed and was in use early during the year. The buildings of the Delinquent Home were completed during the year and it was possible for the Prisons Department to make full use of the house by the end of the year.

The housing campaign made very good progress and 20 model cottages for estate lalour were built during the year.

(b) *Unleased Crown Lands.*

Immediately upon arrival the Forest Officer made a survey of the more important Crown Lands, He visited the Central Forest Area at Mahe (2,114 acres) and Vallée de Mai, Praslin (32 acres) and Curieuse Island (900 acres). He started work in the most important areas of the Niol, Valriche and Sans Souci in the Central Forest area.

The Vallée de Mai continued to receive special attention. This reserve contains the most important and most beautiful stand of the famous Coco-de-Mer palm *Lodoicea maldivica*, Pers,

Curieuse Island continued to be managed as a coconut island. The number of nuts collected was 227,951 and some 18 tons of copra were exported.

The Outlying Islands of the Aldabra Group were exploited mainly for fish and turtle. A small scale exploitation of the extensive mangrove forests of Aldabra was attempted quite successfully. The Forest Officer will visit Aldabra some time next year to report on the future exploitation of these forests.

5. Botanic and Town Gardens.

In certain areas of the Gardens the presence of numerous closely planted trees resulted in overhead shade, and conditions had reached the detrimental stage to the growth of ornamental shrubs. A number of mango and other trees were cut back to provide for better conditions for growing flowering shrubs, and to bring existing ornamentals more in sight. Restoration of various sections of the Gardens, adjoining the Belle Eau stream, was carried out during the year.

A regular display of strong colour remained the chief feature on both sides of the main drive of the Gardens. Throughout the year a continuous display of different varieties of Canna, Euphorbia, and Bougainvillea was provided. Oleanders, Poinsettias and Cassias added much intensity to the colour scheme. Beds of Zinnias, Balsam, Dahlias and Sunflower were also maintained. The creepers *Congea tomentosa* and *Odontodenia* flowered profusely during the North West monsoon. The various Brownias are additional wealth fo the colour of the Gardens.

Regular maintenance was given to the Children's playground, Government House grounds, and to the grounds of various Government buildings under the control of the Department.

6. *Extension Work and Agricultural Census.*

Advice and assistance was given by members of the Staff to landowners, and planting material distributed whenever required. Broadcast talks on Agricultural subjects were given over Seychelles radio by members of the staff, and agricultural leaflets published and distributed to planters.

Towards the end of the year when labour shortage was felt in certain areas it was possible to help a few landowners by allowing them the use of a Government-owned Furguson tractor for ploughing and other operations on their plantations.

Numerous visits were paid by members of the staff to various estates Those visits became more frequent towards the close of the year, when data were being collected for the 1950 Census of Agriculture.

This census was undertaken to produce a fairly accurate, and up to date picture, which could be of some use to the 1950 World Census of Agriculture.

Data have been collected from a local census held at the end of 1950. Questionnaires were despatched to all landowners on 25th September, 1950, and Returns were called for by the 31st December, 1950. The Director of Agriculture used the powers conferred upon him by Section 7 of the Food Crops Ordinance, Ordinance No. 18 of 1945, to request landowners to submit full details with greatest possible accuracy. The completion of the Census was retarded by dilatoriness on the part of a small number of landowners, and by misunderstanding on the part of peasant proprietors. Reminders were despatched, and the Census Staff kept active in collecting returns, and it was eventually possible to secure the largest possible number of returns on a voluntary basis, without having recourse to compulsory measures as provided for under the Food Crops Ordinance.

SECTION III. LFGISLATION.

The following legislation was enacted during the year :—

Ordinance No. 17 of 1949 :	An Ordinance to amend the recruitment of Workers Ordinance, 1945 (Ordinance No. 27 of 1945.
Ordinance No. 23 of 1949 :	An Ordinance to amend the Outlying Islands (Employment of Servants) Ordinance, 1945 (Ordinance Eo. 26 of 1945).

Ordinance No. 16 of 1950 :	An Ordinance to amend the recruitment of Workers Ordinance, 1945 (Ordinance No. 27 of 1945).
Ordinance No. 23 of 1950 :	An Ordinance to make provision for the prevention of the introduction and spread of infections and contagious diseases among animals.
Ordinance No. 27 of 1950 :	An Ordinance to control the export of Fish.
Ordinance No. 31 of 1950 :	An Ordinance to amend the Copra Price Stabilization Ordinance, 1949 (Ordinance No. 4 of 1949).

SECTION IV. STAFF AND GENERAL

Mr. F. Durocher-Yvon, Agricultural Officer, continued to attend the Second Devonshire Course at the School of Agriculture, Cambridge University, during the Lent and Easter terms and returned to the Colony on 20th August. On the departure of the Director, at the end of the year, he was appointed Acting Director.

In October, 1950, Mr. J. N. Milsum, O.B.E., Director of Agriculture, left the Colony on leave, prior to retirement. It is fitting to record here the excellent work performed by Mr. Milsum during his two year's stay in the Seychelles. A lifetime experience in tropical agriculture was put at the disposal of the Colony. Mr. Milsum will be specially remembered by the staff of the department, and by the planting community at large, for his untiring efforts to promote agricultural advancement in the Seychelles.

Dr. F. M. L. Sheffield, of the Clove Research Scheme, Zanzibar, visited the Seychelles. The purpose of Dr. Sheffield's visit was to investigate whether certain characters of the clove, which are not typical of all dicotyledons, but which exist in clove trees affected with sudden death as well as in seemingly unaffected trees of Zanzibar, are due to incipient infections with sudden death disease. After examining clove trees of the main granitic islands of the Seychelles, which are known to be free from sudden death, Dr. Sheffield came to the conclusion that none of the characters observed in the clove trees of Zanzibar could be regarded as diagnostic of sudden death disease, as they were all represented on the healthy Seychelles trees.

Mr. L. S. Greening, Economic Liaison Officer to the Secretary of State for the Colonies, visited Seychelles in June, 1950. During his stay in the Colony he visited the Department and the Grand'Anse Estates.

Dr. W. D. C. Danks, Assistant Director of the East African Veterinary Research Organization, visited the Seychelles from February to April to advise Government on the animal industry of the Colony. Following one of his recommendations, Dr. D. K. Desai has been appointed Veterinary Officer to the Department. Dr. D. K. Desai arrived at Mahe on 29th October, 1950.

Mr. E. F. Brewer, of the United Kingdom Forestry Commission, was appointed Forest Officer and arrived in the Colony on 8th November, 1950.

In November, 1950, Mr. J. F. Guy Lionnet, Scientific Assistant, at the end of his five year's contract with Government, was promoted Agricultural Chemist.

F. DUROCHER YVON,
Ag. Director of Agriculture.